

Pacific Northwest Rivers Study

Project Summary: Montana

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PACIFIC NORTHWEST RIVERS STUDY: PROJECT SUMMARY STATE OF MONTANA

This report presents a brief description of the assessment process and preliminary findings for each of the resource categories analyzed in the Montana component of the Pacific Northwest Rivers Study.

The Pacific Northwest Rivers Study was initiated to assess the significance of river segments for a variety of environmental values. The expressed purpose of the project is to identify environmental and institutional considerations which might have a bearing on hydropower development in the Northwest. Information produced through this project will provide input into a variety of regional and state power planning and resource management activities.

The State of Montana coordinated the assessment process within state boundaries. The project itself is a cooperative effort of the four Northwest states, federal land management agencies, and Indian tribes. The Bonneville Power Administration provided regional coordination and funding.

The resource assessment phase of the Rivers Study was initiated in June 1985, and completed in January 1986. This phase produced both tabular information regarding each river segment in the state and a series of maps identifying the location of river segments. Each segment was also assigned to one of a series of resource value classes depending on its relative significance within a given resource category. Subsequent to the initial assessment, information was encoded into computer format and made available for review by project participants.

Separate yet coordinated resource assessments were conducted for each of five resource categories. A summary is provided for each. They are presented in the following order:

1. Resident Fish
2. Wildlife
3. Natural Features
4. Cultural Features
5. Recreation

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PACIFIC NORTHWEST RIVERS STUDY
MONTANA INVENTORY OF FISHERIES RESOURCES

The Montana Department of Fish, Wildlife, and Parks conducted the fisheries inventory, with information obtained from fisheries biologists with DFWP and the U.S. Forest Service, Bureau of Land Management, and U.S. Fish and Wildlife Service.

The Montana Interagency Stream Fishery Database (started in 1973) was updated by adding additional streams, correcting existing information, revising the fishes of special concern list and adding a genetic value, and entering recent estimates of fish populations and fisherman use.

Fisheries values assessed on each stream reach were habitat and species value (for game and non-game species alike) and sport fisheries value.

River reaches were assigned to one of five fishery resource value classes (Outstanding, high, substantial, moderate, and unknown) based on six criteria: fish abundance and/or biomass; ingress (the legal right of the public to fish or landowner willingness to allow fishing); esthetics; fisherman use; value of the habitat for fishes of special concern; and genetic value of special concern fishes. Special consideration was given to: tributary streams that provide valuable spawning habitat for game fishes; spring creeks; and streams that are locally important for scientific study, nature study, or recreation.

Nearly 2500 river reaches, about 19,500 miles of streams, were assessed in the study. About 11 percent (2087 miles) were rated Class I (Outstanding or highest value); 17 percent (3395 miles) Class II, 37 percent (7235 miles) Class III, 34 percent (6614 miles) Class IV, and 1 percent (175 miles) unknown. Habitat and species value appeared to be the major determinant of final resource value.

The number of reaches east and west of the Continental Divide was roughly equal, although about two-thirds of the river mileage was in the eastern part of the state.

The standards established in a 1980 stream evaluation for the habitat and species value category were extensively revised for the current study. This substantially increased the Class II mileage for habitat and species value, from less than five percent in 1980 to over 14 percent at present. This is much closer to the target figure (about 15 percent in Class II).

The fisheries assessment benefits from a long history of interagency efforts to classify streams based on fisheries

values, but reliable fish population information is still needed for many stream reaches. In the future when the database contains acceptable data for every stream reach, the standards and criteria for Class IV can be made more stringent. Presently, they are somewhat relaxed to insure that no stream reach is placed in Class V when it should be at least Class IV.

PACIFIC NORTHWEST RIVERS STUDY
MONTANA INVENTORY OF WILDLIFE RESOURCES

The Montana Department of Fish, Wildlife, and Parks conducted the wildlife study, with initial information gathered from more than 40 wildlife biologists and land managers from DFWP, the U.S. Forest Service, and Bureau of Land Management. No attempts to assess the wildlife value of river reaches or basins statewide had been made before.

Wildlife species' range and habitat are not strictly defined by bodies of water, so individual river reaches were not rated. Instead, 372 wildlife assessment units were created based on river reaches and drainage basins.

Wildlife value class for each unit was based on habitat value, species value, and recreational value. Habitat value was determined by specialized land use (such as designated refuges and management areas) and habitat characteristics (such as quality and diversity). Species value was determined by the presence of threatened and endangered species, species of special concern (such as harlequin ducks, colonial birds, and nesting raptors), and the density of game and furbearer species. Recreation value was determined by the presence of consumptive and nonconsumptive recreational uses.

Assessment units were assigned to one of four value classes based on an average of habitat and species ratings, with recreational value used as a tie-breaker. Eighteen percent (68 units) were rated as Class I (Outstanding value), 33 percent (121 units) were Class II (Substantial value), 31 percent (116 units) were Class III (Moderate value), 11 percent (41) were Class IV (Limited value), and 7 percent (26 units) were Class V (Unknown value).

The western part of the state (DFWP management regions 1, 2, 3 and 4) contained 82 percent of the Class I units, 74 percent of the Class II units, and only 24 percent of the Class IV units. Region 3 had the highest percentage of Class I units and Region 1 had the greatest number of Class II units. Regional comparisons are not straightforward, however, because region size and other factors vary widely.

The percentages in each value class reflect two recent changes made in the rating system following peer review. First, value due to habitat conditions alone was increased. Previously, too much weight had been placed on official designation, preventing areas in excellent condition and having habitat diversity and quality from obtaining a Class I rating. Second, weighting was increased for units supporting a diversity and high density of

game species and furbearers. Previously, Class I species ratings could not be obtained in an area that did not support threatened and endangered species.

As a result, 32 units were upgraded to Class I in habitat value (mostly in the eastern DFWP regions) and 43 units were upgraded to Class I in species value (about 40 percent of the upgrades were in Region 1). An additional 19 units achieved overall Class I status from these revisions.

The accuracy of the wildlife inventory is good, especially for habitat and species ratings. The data quality could be improved by adding species use, density figures for each type of range, and population estimates by hunting districts. The data base could be expanded to include environmental assessment, land use, and public access.

More accurate methods of assessing consumptive (and non-consumptive) recreation values should be explored. Currently, non-consumptive uses are given more weight than consumptive uses; a Class I designation cannot be achieved without non-consumptive attributes. Consumptive recreation value, measured by success rates, hunting pressure, and non-resident pressure, was extrapolated from hunting districts to the wildlife units (using only one year of hunting data).

These refinements are important because recreational value was used as a tie-breaker in establishing overall value class in about 40 percent of the units, downgrading the units in about 75 percent of the cases.

PACIFIC NORTHWEST RIVERS STUDY
MONTANA INVENTORY OF NATURAL FEATURES

The Montana Department of Natural Resources and Conservation conducted the Natural Features inventory, with assistance from the U.S. Forest Service, Bureau of Land Management, U.S. Geological Survey, University of Montana, Montana State University, Museum of the Rockies, Carter County Museum, Montana Rare Plant Project, and the Nature Conservancy.

Existing National Natural Landmark Theme studies and U.S. Forest Service lists of Research Natural Areas provided a starting point for the inventory.

Features assessed were: rare, threatened, or endangered plant species; rare, unique, or exemplary plant communities; geological and hydrological features; and previously-designated natural areas such as National Natural Landmarks or Research Natural Areas.

Features were assigned to one of four value classes (Outstanding, Substantial, Moderate, or Unknown) using four criteria: resource scarcity from a local, regional, or national perspective; scientific and educational value; public and recreational use; and designation or listing by a management agency. Each natural feature identified received a rating on each criterion, and overall value class was the highest of the four ratings.

The study identified 399 botanical features and 922 geological features, about twice the number that had been anticipated. Of the total, 31 percent of the sites were rated as Outstanding (Class I), 29 percent as Substantial (Class II), and 31 percent as Moderate (Class III) resources. The value of an additional nine percent was unknown, so these fell in Class IV. Educational value and previous designation were primary determinants of value class. Most paleontological sites and all 146 geologic type locations received Class I ratings.

Most of the features were located in the western third of the state. Sites were clustered around Missoula, Bozeman, and Butte, in part because of previous work done by the Universities.

Because a field inventory was not conducted, the list of natural features is far from complete although many high-value natural features were identified. Priorities for further study include: examination of 7.5' quadrangle maps for additional features; identification of major cottonwood/island/alluvium complexes; and coordination with the Montana Natural Heritage Program's rare plant inventory.

PACIFIC NORTHWEST RIVERS STUDY
MONTANA INVENTORY OF CULTURAL RESOURCES

The University of Montana conducted the cultural inventory, using information from the Statewide Archaeological and Historical Database maintained at the University. Archaeologists from the U.S. Forest Service and Bureau of Land Management participated, as did other interested professionals.

While similar distributional studies have been conducted in the state, largely for linear transmission facilities such as powerlines and pipelines, none have explicitly considered the relationship of cultural resource values and stream reaches.

The assignment of value classes was based on two criteria: whether sites had been reported within the stream reach vicinity (or could be expected to be found if a survey were conducted); and the significance of the properties, measured using the standards of the Keeper of the National Register and the President's Advisory Council on Historic Preservation.

Class I was assigned to reaches in the general vicinity of sites listed in (or determined eligible for listing in) the National Register of Historic Places. Class II included reaches in the general vicinity of sites eligible for listing in the National Register by a consensus determination of the Montana State Historic Preservation Officer and a federal agency head. Class III was assigned to reaches in the vicinity of sites that have been reported (or have not been reported) but not evaluated for eligibility for listing in the National Register. Class IV was used for reaches having no reported sites, but where some potential exists for National Register eligible properties.

To maintain site confidentiality, value classes were assigned to all stream reaches that had been assigned water codes by the Department of Fish, Wildlife, and Parks; specific sites were not identified on the maps. The University will maintain the type and location of sites on file.

Over 6,700 stream reaches were assessed. Reaches were distributed over the entire state, with the density of studied reaches corresponding largely to the density of drainages in the area.

More precise figures are forthcoming, but current estimates place four percent of the reaches in Class I, one percent in Class II, 25 percent in Class III, and 70 percent in Class IV. Although a Class V category had originally been reserved for reaches having no potential for significant historical and cultural properties, study participants could not identify any

such reaches.

In most cases, cultural resource values were determined by the extent of cultural resource survey in the area or the property's degree of visibility (such as existence of a distinctive house occupied by a well-known figure in the history of a community).

Because many previously unreported cultural properties are being found and evaluated each year, the reaches should be checked and re-evaluated at least annually. Classes IV and V could be dropped because all stream reaches have the potential for significant cultural values. The criteria for Class I and II could remain the same, while Class III could include all other stream reaches.

PACIFIC NORTHWEST RIVERS STUDY
MONTANA INVENTORY OF RECREATION RESOURCES

The Montana Department of Fish, Wildlife, and Parks conducted the recreation inventory, with assistance from the U.S. Forest Service, Bureau of Land Management, and river users and user groups from throughout the state. No previous statewide inventory of river recreation resources had been attempted.

State and federal recreation managers identified river reaches having recreational value and provided information on eight characteristics for each reach: opportunities for boating; other water-based recreation activities; land-based recreation activities related to the river; current use level estimates; access; Recreation Opportunity Setting class; scenic quality; and number and type of developed recreation sites along the river reach.

Recreation managers recommended one of five value classes for each reach identified (Class I--Outstanding, Class II--Substantial, Class III--Moderate, Class IV--Limited, or Class V-- Unknown value), considering a reach's position on the eight inventory characteristics and other information as needed. Value classes were determined by professional judgment, not by a point system, but managers described the specific reasons for their value class assignments.

State and federal managers and Rivers Study staff identified about 300 private river users and commercial river users who were asked to participate in the study by nominating river reaches for inclusion in the data base. Nearly 200 reaches were suggested (although many of these overlapped to some extent). These ratings were compared with the managers' perceptions. Very few significant differences were noted; river users' value recommendations were seldom more than one class away from the managers' ratings.

About 800 river reaches were identified, comprising about 12,600 miles of rivers. Out of 777 containing complete data, 8 percent (67) were rated as Outstanding, 18 percent (143) as Substantial, 44 percent (344) as Moderate, 20 percent (156) as Limited, and 9 percent (67) as Unknown value.

Nearly three-quarters of the reaches were described as not boatable, pointing to the importance of maintaining opportunities for boating on Montana rivers. This is especially true for the relatively scarce whitewater resource; only about seven percent of the reaches contained moderate or larger-sized rapids. However, a larger proportion of whitewater reaches (compared to flatwater reaches) were rated as having Outstanding or Substantial value.

DFWP Management Region One contained 11 percent (87) of the reaches, Region Two 20 percent (156), Region Three 34 percent (266), Region Four 19 percent (148), Region Five 9 percent (70), Region Six 3 percent (26), and Region Seven 3 percent (24).

This initial list and description of Montana rivers having recreational value is better suited for broad regional planning activities or for comparative purposes than for providing detailed information on specific river reaches, which would require field inventory. However, the data give a good overall look at the relative availability of river-related recreation opportunities in Montana.

Although the list of reaches and their ratings have been reviewed by state and federal recreation managers, the inventory will continue to be updated and expanded, becoming not only more comprehensive but more accurate with each subsequent review.

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